

ESTABLISHED 1848

RURAL
WORLD

COLMAN'S RURAL WORLD

DEVOTED TO AGRICULTURE HORTICULTURE HORSES CATTLE SHEEP SWINE ETC.

Established 1848.

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COLMAN'S RURAL WORLD.

NORMAN J. COLMAN,
LEVI CHURCHILL, EDITORS.

Published every Wednesday, in Chemical building, corner of Eighth and Olive streets, St. Louis, Mo., at one dollar per year. Eastern office, Chalmers D. Colman, 530 Temple Court, New York City. Advertisers will find the RURAL WORLD the best advertising medium of its class in the United States. Address all letters to COLMAN'S RURAL WORLD, Chemical Building, St. Louis, Mo.

Subscribers must bear in mind that the subscription price of the RURAL WORLD is one dollar a year, and that we do not receive single subscriptions for a less sum, but in our constant effort to enlarge our circulation, we do allow old subscribers to take actually NEW subscribers at the fifty-cent rate, adding a new name with their own for one dollar, and other new names at fifty cents each, but in no case do we accept two OLD subscribers for one dollar. We are willing to make a loss on a new subscriber the first year, believing he will find the RURAL WORLD indispensable ever after. We also send the RURAL WORLD in conjunction with either the twice-a-week St. Louis "Republic" or the twice-a-week "Globe-Democrat" for one dollar and fifty cents a year, and new subscribers may be added at the fifty-cent rate. Published at this remarkably low price—less than actual cost—all subscribers must see the necessity of our dropping from our subscription list every name as soon as the year paid for expires. Thus if, on the printed slip of each paper you see John Jones May 22, it indicates that the name will drop from the list at the end of May, and if he wishes to continue to receive it, he must renew his subscription. If he would do it a week or two in advance, it would save us the trouble of taking his name off the list and again putting it in type, when he renewed, which frequently causes mistakes.

A great co-operative scheme is being exploited in the northwest Missouri and Kansas, regarding which we suggest to our readers who may be brought in contact with it that they exercise caution. Co-operation is right, and proper under proper conditions, but, like all good things, can be abused. There seems to be a good deal of the "theatrical" just now in the promotion methods used to us does not look like sound business sense.

We are pleased to direct the attention of RURAL WORLD readers to the communication on this page from Secretary Ellis of the Missouri State Board of Agriculture regarding farmers' institutes. The State Board of Agriculture is thus early at work on the farmers' institutes for the coming season, and Secretary Ellis gives notice to farmers who want institutes in their respective communities to get in line at once. Mr. Ellis wants suggestions, too, as to how the institutes can be made the most successful, and he will be glad to get these through the RURAL WORLD.

TREE PLANTING IN ST. LOUIS.

The Engelmann Botanical Club, of St. Louis, has issued quite recently a report of the Tree Planting Committee, which should prove very useful not only to St. Louis, but in other cities and towns. The special work of this committee is to develop more interest among St. Louisans in the beautifying of their city by planting and caring for trees; and to that end has, for several years, been collecting information on the subject of tree planting in the cities of the United States and Europe.

The information contained in the bulletin just issued will, therefore, be of interest to all who are in sympathy with the effort being made to beautify the city.

That St. Louis is greatly lacking in that beauty that well cared for trees give, is painfully apparent to all observers, and it must be admitted that the city will suffer in reputation by this lack, unless, in a measure, remedied before the World's Fair is held.

The committee in its report says:

"One of the first questions which a new comer to a city asks, is whether it is an attractive city to live in. Beauty in cities is brought about by fine buildings, wide streets, tasteful ornamentation of buildings, signs, posts, and above all by trees, shrubs and flowers. The latter not only please the eye, but serve to purify the air, to regulate temperature and to give shade.

"The presence of green plants exerts a subtle influence on everyone. This influence is one which can hardly be described, but it is one which all feel. The shrubs and vines give to a house which makes a home. The city inhabitants who dwell in the country enjoy. Especially is this true of the children. They become accustomed to fragrances, asphalt pavements and stone walls, and much of the brightness which life among the fields and woods gives to a child, is dwarfed and more often lost to the city."

child. One of the first duties of every citizen of a large city ought to consist, therefore, in counteracting the city influence, and to aid in bringing as much as can be brought of the fields and woods into the city."

Then the report proceeds to tell how this can be done. We earnestly hope its teachings and those of subsequent bulletins will have a marked effect.

Copies of this report may be had by addressing H. C. Irish, Secretary Engelmann Botanical Club, Missouri Botanical Garden, St. Louis, or Dr. H. von Schrenk, Secretary Tree Planting Committee, Washington University, St. Louis, Mo.

Let us all lend a hand in this effort to bring "as much as can be brought of the fields and woods into the city."

CULTIVATION OF CORN.

The small corn crop of last year has not affected the stock market as to prove very clearly the importance of this crop, and it is also evident that too much consideration can not be given to the present season's crop, as a means of overcoming the shortage from last year. A butcher, deploring the high price of meats, said to the writer: "I will have to close out my business because people are buying as little meat as possible." He also said: "It is costing me twice as much for feed for my horses as it did a year ago." Thus it is evident that the supply of farm products very markedly affect all conditions of life.

Now, in view of these facts it is important that the corn crop have intelligent care. The experiments of progressive farmers in recent years show that no general crop returns so largely for cultivation; but the old rule of three times going over the corn field is out of date.

If the few weeks following the planting after the corn is up prove to be cool, often the weeds get a start. Weeds must be kept in check if the corn is to get a start. The weeder is the implement that will help the farmer to keep his corn clean, and it is coming into use more and more every year. A good farmer of our acquaintance has practiced going over the corn with the weeder each way and then following with the cultivator at each successive cultivation. A man with horse and weeder will go over more than twice the acreage that a man with double team and cultivator can. The weeder levels the ground and works through the hills just where the work is needed.

If there are doubts as to the profits of so much labor on a corn crop, select two corn fields and give one the old-time three cultivations and keep the other three cultivations charging up to the latter the cost of extra labor expended and ascertain at corn gathering time if it pays.

THE CITY DAIRIES OF ST. LOUIS.

A Disgrace to a Civilized Community.

Mrs. Mary Waldo Calkins of St. Louis has discovered (?) a horrible condition that exists in the dairies of this city, as will be seen by reading the article headed "A Discovery" (?) on page 2 of this issue.

That the condition as described by her exists we can fully substantiate from personal examination, but it will hardly be in order to credit Mrs. Calkins with having "discovered" the condition, excepting personally. The conditions that exist in these city dairies have been repeatedly described in the RURAL WORLD, and they have been fully set forth in Volume VI. of the Report of the U. S. Industrial Commission, under the head of "Milk Trade of Cities and Towns" (pages 255-264). The Milk Trade of St. Louis, and are well known to many citizens of the city, including members of the City Board of Health. It was in company with Dr. Howard Carter, former city milk inspector, and a reporter for one of the daily papers that the writer visited a large number of these city dairies and found conditions in some of them even worse, if that be possible, than those described by Mrs. Calkins.

The City Board of Health has been anxious to eliminate this menace to public health, but thus far has been powerless to do so, largely because of the fact that the powerful brewery and distillery interests of the city stand in the way. There are about 8,000 cows in these city dairies, fed largely on the refuse of the breweries. The brewers are not willing that this outlet for the refuse from their plants shall be destroyed, and they are compelled, in consequence to install apparatus for drying the spent grain so that it can be shipped away by rail. Dried brewers' grains are recognized as a valuable stock food, and two of the largest breweries in St. Louis dry all of their spent grain and ship it to Europe for stock feeding purposes. But others prefer to dispose of the wet refuse to these city dairies, and there has been enough influence brought to bear in municipal affairs to prevent the passage or enforcement of ordinances that will not permit the maintenance of dairies within the city limits.

Possibly civic pride has been sufficiently aroused in St. Louis of late to secure the passage and enforcement of such ordinances as will wipe out of existence these unspeakably filthy "swill dairies." The conditions under which many of the cows are kept, the kind of food given and the manner in which the product is

handled make the milk produced little short of being poisonous, particularly to infants, and there is not the slightest doubt in our mind that hundreds of children are yearly carried from St. Louis homes to premature graves as a result of drinking this "swill" milk.

Some of our people have of late become somewhat exercised regarding the diseased and "doctored" meat, which, it is alleged, is being brought into the city; and well they may be, but the danger to life and health from that source is not one-hundredth part as great as is that from the 15,000 or more gallons of milk produced daily in the dairies that exist within the limits of St. Louis.

No large city in the country has less excuse than St. Louis for not having an adequate supply of clean, wholesome milk, for none other has such an area of farming land coming to its very doors as has this city. The territory surrounding St. Louis for 30 miles in all directions is one of comparatively cheap land, yet admirably adapted for dairying, and the farmers only need to be given the prompt of a market to produce their product to supply the city with an abundance of milk and cream produced under proper sanitary conditions.

We trust Mrs. Calkins' crusade against the "swill dairies" of St. Louis will be prosecuted vigorously and that the daily press and the forces of the city that stand for the best interests of the community will support her in the fight.

Surely a city that aspires to hold an exposition in which to exhibit the world's advance in cultivation will not much longer suffer to exist so barbarous and disgraceful a thing as are these "swill dairies."

STUDY YOUR FARM.

In the early days of the application of science to agricultural matters it was thought by many that chemistry would easily solve all of the problems involved in soil fertility and plant growth. But the dream that the chemist, by taking a handful of soil from a field and analyzing it, would thus be able to tell all about its crop-producing capacity, what it lacked and what must be applied to make it most productive has not been realized. Chemistry has been very helpful to agriculture, but it has its limitations. Notwithstanding the high degree to which the science has been developed, no chemist has yet attained a skill as delicate and accurate as that possessed by a living plant in determining just how much plant food a certain field will yield; and so the investigators are coming more and more to appeal to plants for information along this line.

In a recent report from the Rhode Island Experiment Station, B. Hartwell discusses the difficulty of accurately determining the available or assimilable plant food in soils, maintaining that "analytical results have frequently failed to account satisfactorily in the case of given soils for differences caused by known fertilization and cropping."

A German scientist, Dr. T. Pfeiffer, is quoted by the Experiment Station Record as referring to the unreliability of chemical analysis as a means of determining the fertilizer requirements of soils. He considers carefully conducted field experiments as the most reliable means at the command of the farmer for determining the fertilizer requirements of his soils.

This is in accord with the view held by the RURAL WORLD, and which has led us to frequently urge upon our readers the desirability of their making crop and fertilizer tests on their own farms.

Every man's farm should be, to some extent, an experiment station. If he will get in the way of doing his own investigating as to the crop-growing capacity of his soil he will soon get on more intimate terms with his farm than is possible for any chemist. An acre of ground devoted to the investigation of its capacity for growing corn, wheat, grass and other crops under different methods of culture and varying application of fertilizers will in a few years add dollars to the value of every acre of the farm.

COW PEAS IN CORN.

Editor RURAL WORLD: I am contemplating planting cow peas in my corn. As I shall cut my corn with a corn harvester and blower, I am somewhat at a loss as to the proper method of planting the cow peas, so they may be cut, bound and shocked with the corn. I would like to ask some of your experienced readers how the following plan would work. The corn is planted in check rows, the hills three feet eight inches apart each way. The corn will be cultivated both ways. After the last cultivation, the shortest way, I think of using the hand corn planters and dropping the peas along the row the long way, so as to cultivate corn or wheat once or twice after the peas are planted. Can enough peas be raised in this way to pay for the trouble? How thick should they be planted in the corn row, the long way? Is there any doubt about the corn harvester being able to cut the corn and peas together in the row? Is there any better method of planting the peas so they can be cut with the corn harvester and saved with the corn? Has anyone tried this method, and if so, did the peas keep well, bound up with the corn?

I may want to feed it from the shock after husking the corn, or I may want to shred it. I think shredding the corn and peas together would make excellent stock food. Has any one tried shredding corn and making a big stack in the open field, near where it is to be fed? I think

the rain would not damage it much, but I fear the wind would play sad havoc with it. Which varieties of cow peas would it be best to plant in the corn row in the way suggested? Answers to any of these questions through the RURAL WORLD will be very thankfully received by

YOUNG FARMER.

NOTES FROM THE OZARK UPLIFT.

Editor RURAL WORLD: The condition of the drouth sufferers was the subject of my last article, written in March. Since then, Pulaski county has received some assistance from without and within. Through the generosity of the people of St. Louis Mr. Ed Williams, county clerk of Pulaski county, procured a bushel of seed corn for each needy family in the county and afterward the county court donated \$50 to the deserving poor of the county. Of this sum each needy family received from \$2.50 to \$5.00. Much credit is due Mr. Williams for having started the relief agitation for this county.

The climatic conditions have been quite favorable for farming operations in this locality this spring. The greater part of April was cool and dry. April 20, the day of astonishing high temperature for the time of the year, when withering hot winds were blowing at the rate of 30 miles an hour, as far north as Des Moines, and were holding high' carnival throughout the Central West, was a mild spring day here, with a temperature of about 75 degrees. I have lived here five years and never felt a hot wind in summer or a blizzard in winter. It seems as though this Ozark Uplift formed a complete barrier against the invasion of groundswelling storm movements and atmospheric disturbances of a severe character and the Storm King swings gracefully either to the right or the left of this mountain islet which rises like a solitary queen out of the heart of the Mississippi basin.

The grain, especially wheat, is at present, looking splendid. It had been closely cropped by live stock until very late in the season, as late as April 10 and 15, but the copious showers during the latter part of April and early in May have caused it to boom. Most of the corn is planted and some is up ready for cultivation. Early planted potatoes and garden vegetables are doing well.

The trees in the wild woods did not arrive at full leafage until about the fifth of May. Rather late, we thought. Of course, the exact time when a great natural change like this is completed is by no means easy to determine. Like the first uncertain advances of the stealthy dawn or the last faint glow of departing twilight, there is no well defined line of demarcation where the one begins and the other ends.

All live stock was carried through the winter in starvation and many died. Less than half the usual supply of feed. They all looked thin in the early spring; however, very few animals died of actual weakness and starvation. Since grass started they began to mend and to-day they look as well as they ever did. There is no danger of grass now on the open range, due to the abundance of heat and moisture. Hogs are making a fat living on the tender young wild grass at present. This, with a little swill morning and evening, will keep them around home and in prime condition.

Sheep shearing is the order of the day in this neighborhood now.

One of my near neighbors, sowed a small field of alfalfa for experimental purposes in the spring of 1900. That season proved rather wet and the young plants were almost choked with weeds. Last year's drouth demoralized the crop to such an extent that it was pronounced an utter failure and part of the field was plowed and sown to winter wheat. This spring the alfalfa stands a foot high, is growing vigorously and shows dark green foliage. The part sown in the fall is now growing up alfalfa that started from last year's crop of seed and seems to be holding its own among the wheat plants.

I like to read the articles from William Manning and Helen Watts McVey. Mr. Manning used to live in Illinois the banner state of the American Union where I was born and which I left two and twenty years ago.

Success to the RURAL WORLD; it deserves the support of every progressive agriculturist in the State of Missouri.

GEO. KAVANAUGH.
Pulaski Co., Mo., May 11, 1902.

TENNESSEE NOTES.

Editor RURAL WORLD: Three months ago I wrote you for a sample copy of the RURAL WORLD, which was promptly sent. After reading it I liked it so well that I sent the subscription price for two years. My interest has so increased that I shall never be without the paper so long as I continue on the farm, and that will doubtless be for life.

I am a young farmer with limited capital and experience, so will have to supply their lack with energy and determination. I love the farm and love its work. Being inexperienced, I greatly enjoy reading the experiences of others which are published in the RURAL WORLD.

Obion County is another victim of last year's drouth, which has made it pretty tough on us, though stock came out fairly well. Corn is about all planted and is growing nicely. Wheat looks fairly well, but will be slightly below the nominal. Pastures are very short. Owing to this and the high price of corn, many have

been compelled to graze a portion of their wheat.

In an effort to secure an early feed for stock, I sowed one acre to oats and Canadian peas, using one bushel of each. At present they are 18 or 20 inches in height and promise a large crop. I sowed only one acre, as I had never seen the crop grown.

Will some reader who has tried it please tell what value it has as a feed for horses?

I would be very thankful if some one would tell me if sheep may be turned into a field of ripe stock peas. I sow peas in corn at last cultivation and wish to graze with sheep and hogs in fall.

Success to the RURAL WORLD.

B. F. MITCHELL.
Obion Co., Tenn., May 19.

We trust our readers will respond to Mr. Mitchell's request for information and that he will feel free to call for more at any time.

CLOVER IN ROTATION.

Editor RURAL WORLD: The value of clover in rotation is now well understood. It supplies fertilizer nitrogen almost free of cost. In fact, but for this free nitrogen on many farms the usual wheat, clover, timothy, corn, rotation could not be followed with profit. For example, a 60-bushel corn crop uses 110 pounds of nitrogen, which in commercial fertilizer costs about \$16, or over 26 cents per bushel of corn. At this rate it would take dollar corn to make a profit. Clover, of course, follows wheat, though it is a very rare thing for fertilizers to be applied to the wheat in sufficient quantities for the wheat itself, and the clover is expected to make the most of what it can scrape together.

A crop of wheat, say an extra good one, uses about 57 pounds of nitrogen, 30 pounds of potash and 25 pounds of phosphoric acid; the fertilizer used was most probably 600 pounds per acre of a fertilizer testing 2 per cent ammonia (containing nitrogen), 8 per cent phosphoric acid, and 1 per cent potash. This is 600 pounds of ammonia, 48 pounds of phosphoric acid, and six pounds of potash. Hence, the clover starts off with a soil stripped bare of nitrogen and potash, but containing a little available phosphoric acid. But the clover family is essentially a potash fertilizer plant and it would take dollar corn to make a profit. Clover, of course, follows wheat, though it is a very rare thing for fertilizers to be applied to the wheat in sufficient quantities for the wheat itself, and the clover is expected to make the most of what it can scrape together.

As a matter of fact, on most farms the clover does not get the required potash, and the farmer does not get the clover nor does the soil get the full measure of fertilizer nitrogen. The other name for this sort of soil starvation is "Clover Sickness." It is quite plainly shown above why clover is apt to be short of potash when it follows wheat, especially in soils many years under the plow.

There is nothing intricate in any farmer's working out this problem on his own account. The plain fact is that commercial fertilizers are designed for single cropping years, and quite properly so. As for clover succeeding wheat, there being no soil-tillage operations, most farmers neglect fertilization on that account alone. If a soil is well worn, as soon as the wheat is off, a top dressing amounting to 175 to 200 pounds of actual potash should be broadcasted per acre—i. e., 350 to 400 pounds of superphosphate of potash, and even this leaves nothing for the timothy for the second hay year.

GEO. K. WILSON.
GENTRY COUNTY, MO., NOTES.

Editor RURAL WORLD: The season is fine now and everything looks favorable. It began raining Monday night and rained slowly about six hours on Tuesday; again last night and about all of today, May 14; but we could stand a week's rain and not offer a protest. Pastures, wheat, rye and oats look fine; potatoes are first-class. Hay will be a light crop owing to lack of moisture in April. Corn is not planted and coming in well, but this is cut-worm weather and there is some complaint of damage being done.

Cattle are doing remarkably well, but the editors of those "yellow sheets" that are howling "meat trust," and attempting to boycott the meat industry, ought to have some experience feeding 70-cent corn on 40-dollar-an-acre land. Meats are not too high considering what it costs to produce them.

R. W. MITCHELL.
Berlin, Mo.

MISSOURI FARMERS' INSTITUTES.

Editor RURAL WORLD: If you will allow me space in your paper, I would like to make a few suggestions to your farmer readers in regard to the Institute work for this year.

We are now considering applications for lecturers and for places of meeting, and all applications should be filed early to receive proper consideration. It is our aim to hold as many meetings as the means will permit, but perhaps there will be a greater number of applications than we can supply; therefore it will be necessary to have all the applications in so that the meetings can be properly distributed all over the state.

Perhaps the greatest factor in the development of improved agriculture is the agricultural press, and I believe that it would be a safe rule in determining the most progressive agricultural communities to find out the number of agricultural papers that are taken and base the



NORMAN J. COLMAN.

On Friday last, May 16, 1902, Norman J. Colman, founder of COLMAN'S RURAL WORLD, reached the 75th milestone in his journey of life. The day was spent as had been thousands of others since more than a half century ago, Gov. Colman first assumed the editorship of what was then COLMAN'S RURAL WORLD and VALLEY FARMER—at the editorial desk.

Still possessed of the mental and physical strength of a man of 60 years, the readers of the RURAL WORLD may reasonably expect another decade of service of what was then the 50 and more Gov. Colman has spent in active participation in the work of advancing the ag-

ricultural interests of this country. It has fallen to the lot of very few to touch so broadly American agriculture as has Gov. Colman—as an editor, in legislative halls, in agricultural organizations and at the head of the U. S. Department of Agriculture—and he might, in all good conscience, ask to be released from further service to the public, and yet the world can ill afford to be deprived of the benefit that age and experience can bestow. Therefore, the readers of the RURAL WORLD and the thousands of farmers throughout the length and breadth of this land who feel acquainted with and an interest in Gov. Colman join in wishing that many years of health and cheer will be added to the 75 that have passed ere he be called hence.

L. C.

A BIRD'S HINT TO A LYON.—

I have just read C. D. Lyon's postscript of May 5, 2 p. m. Brother C. D., you have my sympathies. I have been there myself, but not lately. I suspect you drink tea or coffee or possibly your Sunday dinner was a little richer than usual. At least, I could always trace my sick headaches to one or the other of those causes. I long since quit the use of coffee and tea and for a year have drank nothing at all while eating or for half an hour after or before meals, and have enjoyed better health than for years.

Three years ago I was living almost entirely on boiled milk.

HOW MUCH RED TOP SEED.—In your reply to Alf. F. Becor, of Saline Co., Mo., you advise sowing red top seed at the rate of two bushels per acre, which would make it about as thick as the hair on a dog's back. I have been sowing red top seed for three years, and find that with good, clean seed from one-third to one-half bushel per acre is enough, and that one bushel per acre is an abundance for any kind of soil.

Sow on ground well pulverized on top, but not too loose a subsoil. Harrow thoroughly, then roll. I sow in February, March or April. Mow the weeds once or twice, being sure that none ripen to the bushel, and leave the cut weeds on the ground.

C. A. BIRD.

Red top seed is carried by the seedmen, in the chaff and as solid seed. In the chaff, which is the more common condition in which it is found on the market, the seed weighs about 14 pounds to the bushel. It was of that grade that we recommended two bushels of seed per acre, though we grant that it would be heavy seeding with first-class seed and conditions all good. Of the solid seed, ten pounds per acre would be ample. Does Mr. Bird refer to solid seed, or that in the chaff?

MISSOURI PRIZE WHEAT.—

Elaborate, Mo., May 18.—The highest prize at the Charleston Exposition has been awarded the exhibit of No. 1 red soft winter wheat made by J. W. M. Palmer of this place. Mr. Palmer was given the highest award at the Pan-American Exposition. The wheat is a product of Lincoln County.

A LASTING WHITEWASH.—

Slake 1 bu. fresh lime with boiling water, 1 bu. cover to prevent evaporation. Strain so as to take out all lumps of the lime. A piece of window netting fastened over a small bottomless box answers nicely, add 1 pk. salt that has been dissolved in warm water, 3 lbs. rice flour made into a smooth boiled paste, 8 ozs. Spanish white, 1 lb. glue dissolved, and 8 gals. hot water. Mix well, put over the fire and stir until it reaches the boiling point. The whitewash is now ready to apply, but if a little too thick to go on well, add a little hot water. If rice flour cannot be had, a thin paste made of wheat flour will do nearly as well. Apply while hot, and if it begins to cool before it is all used, reheat it.



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The Dairy

We are very glad to publish the article by Mr. Loomis that appears on this page, and trust that many of our readers will profit by it. Should any one desire further information on the subject there is no hesitancy in calling for it, since Mr. Loomis has so kindly offered to answer questions. There is no good reason why thousands of our readers should not engage in cheese-making with good profit. Let us follow this matter up. Good cheese is scarce and high, and will continue so.

MISSOURI DAIRYMEN SHOULD BE HEARD.

We wish Missouri dairymen would do as friend Plummer has done, (see his letter on this page) tell what they are doing and thus show to the world that such statements as we quoted in the RURAL WORLD of May 7, from the South Dakota man are simply libelous. It was outrageous to have such misstatements published in an official report, though we do not for a moment assume that the officers of the South Dakota Dairymen's Association intended thereby to do the dairy industry of other states harm; nevertheless harm will come from it unless the dairymen of the states mentioned rise and speak in self-defense. In that case, good may come from the ignorant statements made.

BUTTER WILL BE IN DEMAND.

Are dairymen alive to the conditions that will prevail in this country when the oleomargarine law goes into effect? If the hoped-for result of this law, namely, a very material reduction in the amount of oleomargarine put on the market in the guise of butter, is realized, there is likely to be a scarcity of butter to meet the demand. It is said that \$9,000 pounds of oleomargarine are being consumed a month here in St. Louis, the vast proportion of which is unquestionably eaten under the presumption that it is butter. To replace any considerable portion of this amount with butter will certainly greatly stiffen the demand for the latter in this market, and the same condition will prevail in the country over.

Then because of last season's drouth, and the sacrificing of many dairy cows, the Middle West is not as well prepared to produce butter as it was a year ago. It is, therefore, inevitable that butter prices will be higher and they will, in our opinion, continue high compared with those of recent years, indefinitely. Hence we urge dairymen and farmers generally to prepare to meet the inevitable demand for butter.

There should be no wasting of the butter fat by permitting calves to run with the cows, when it is possible to save this by sending to the creamery or working it out to butter at home. Cows should be cared for and provided with plenty of good pasturage so as to secure as good a flow of milk as possible. Crops should be planted now that will afford a supply of green feed when in mid-summer the pastures get short. Plans should be made to build and fill silos so as to have a supply of cheap, succulent and milk-producing winter forage.

Then look after the promising heifers, and don't let the cattle buyers tempt you with what seems to be a good price to part with them.

A great battle was fought in defense of the dairy industry, and a victory won in securing the passage of the oleomargarine bill, and it is now up to the dairymen to meet the condition thus created.

A GOOD DAIRY TALK.

Prof. C. H. Eckles of the Missouri Agricultural College, in addressing the dairy meeting held recently at Orchard Farm, Mo., said many Missouri farmers were thinking seriously of the dairy business as a means of increasing the fertility of their farms. If it be true, as had been stated, that the locality around Orchard Farm was the garden spot of the world, the farmers there may not see at present so much need of conserving the fertility of the soil as do those in other sections. History tells how in all lands the soil has been impoverished by growing grain, and then built up by stock raising and dairying. It was so in Iowa, where wheat used to be largely grown; but the time came when the land had become so poor that the farmers could not produce enough wheat to supply their home needs. They then went into dairying, and now the land is as rich as it ever was.

By means of a chart the professor showed the amount of soil fertility that was taken out of the land by the different farm crops, and brought out the fact that dairy products take less fertility from the soil than does any other class of farm products. A ton of butter, worth the market \$40, will take from the farm only a few cents' worth of soil fertility, while a ton of wheat that will bring the farmer about \$25, will carry away from the farm nearly half that amount in value of plant food when brought in the form of commercial fertilizer.

Can dairying be made to pay on high-priced land? In answer to this question the professor said the highest-priced lands in the world were used for dairying, because that was what paid best. On the Jersey islands, land rents for \$30 to \$50 per annum, yet is devoted almost entirely to dairying. Land in the famous Elgin dairy district sells as high as \$150 per acre.

The professor did not think it necessary to dwell on the advantages of dairying, as most important to discuss how to make dairying pay. The profit would come, he said, by increasing the production per cow and decreasing the cost. The great proportion of the cows, even in well advanced dairy communities, were unprofitable because they gave so small an amount of milk. He had been told the day before of a cow owned near Winfield that had given more than 11,000 pounds of milk in ten months, and which had brought \$120. Probably the cows of the neighborhood did not average over 4,000 pounds of milk a year, making a return of about 25 per cent if the milk was sold for shipment to St. Louis. Small as this is, it is much more than is received by the man who keeps his cows just for their calves. But dairymen must have better than the average of cows.

By means of a chart the different types of cows were illustrated, and that form of cow was illustrated which could be expected to give good yields of milk. The yield, however, was not wholly dependent on form or breeding. Good care and proper feed have much influence. He would undertake to increase the yield of milk of the cows of the country from the present probable average of 4,000 pounds per year to 5,000 pounds by simply giving good care and feeding well. He was of the opinion that in a community like this, where they had so good a market as St. Louis for milk, they should use the special dairy cow and pay little attention to calves, except possibly for veal.

It would not be advisable for the farmers to get enthusiastic and buy a lot of cows. One had better go slow unless he has had experience. The cheapest way to build up a herd is to get a good bull of dairy breeding and save the heifer calves from the best cows. The dairy cow should be a good dairy cow, and the same condition will prevail in the country over.

A good dairy cow will be wedge-shaped, horizontally and vertically, have wide hips, big stomach, large udder, be spare, rough and inclined to be thin when giving milk. She must have large digestive power, large udder, well developed forward and aft, and one that collapses after milking, and that spreads the legs when full. The under part should be flat. The milk veins should be prominent and very winding, with large openings when they pass through the wall of the stomach. The neck should be long and thin; thighs thin and no beef down to the hock, as in cows of the beef breed. The eyes should be large, mild and prominent and wide apart, and the udder should be dish-shaped. No one point will determine the value of a cow.

SAVE \$10.-PER COW

DE LAVAL CREAM SEPARATORS
Prices \$50.- to \$800.-
"Alpha" and "Baby" styles. Send for Catalogue.
THE DE LAVAL SEPARATOR CO.
Rushville, Conn. 94-95, 74 Cortlandt Street, New York.

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STANDING UP FOR MISSOURI.

Editor RURAL WORLD: You can say to Col. "L. & L. Agent" of Huron, S. D., that I am making butter in "poor old Missouri" which sold in New York City on the market April 9, 1902, for 33 cents a pound. My last shipment sold for 25 cents May 8, 1902. The butter was made by a Missouri boy, from Missouri cows that ate Missouri grass.

W. PLUMMER.
Carroll Co., Mo., May 14.

A DISCOVERY (?)

As to How Milk is Produced in St. Louis.

Mrs. Mary Valde Calkins of the Golden Chain Humane Society declares that she has discovered in a St. Louis dairy conditions that equal in horror those depicted by the late Paul Leicester Ford in his work, "The Honorable Peter Stirling," says the "Post-Dispatch."

Mrs. Calkins has declared war on one dairy man and has obtained a Police Court summons. She will prosecute him before Judge Siders on the charge of cruelty to animals.

She has also asked Health Commissioner Starkoff to have the dairy declared a nuisance.

The dairy in question is owned by Joseph Zurwilk, and it is located at 1622 South Second street.

Mrs. Calkins, with Policeman Dougherty, detailed to the Humane Society, and Attorney Rosier Meigs, visited the dairy Tuesday and gathered the evidence on which application for the summons was obtained.

"We found in a low-ceilinged barn," said Attorney Meigs to the "Post-Dispatch," "30 feet long by 25 feet wide, 28 cows. They were crowded in there like the cattle shipped in cars."

"The cows were chained by their heads down, in front of a long trough, in which the food was poured. They could never raise their heads. A cow when she once enters this place is never taken out until she is dead. Then she is dragged out."

"There is no yard, and the animals are never given any exercise. There is no ventilation to speak of. There are doors and windows in the ends, but none on the sides. The barn with sides 50 feet long has not a single window."

"The condition of some of these cows chained in this den is deplorable. They entered the place and the odors almost stifling. The place is filthy beyond description. Four of the cows were nothing more than skeletons. They were covered with sores. It would be impossible to draw the milk without contaminating it, even were the other conditions favorable for a pure milk supply."

"The food given these cows is unfit, and has been condemned in most places. The food is swill obtained from the refuse of the big brewery plants. No other food is used."

"The cows, crowded into this place, consigned to a living death, are reduced to mere machines. The milk that is produced is a menace to the public health, and Mrs. Calkins has authorized me to proceed against the owner of the property with all of the process of the law. The Police Court's trial is merely preliminary, and Dr. Starkoff, who is now investigating the place, will doubtless institute proceedings shortly."

HOOD'S SARSAPARILLA

which corrects the acidity of the blood on which rheumatism depends and builds up the whole system.

HOOD'S PILLS cure constipation. Price 25 cents.

a letter just received from Governor Colman asking him to have me write an article for the RURAL WORLD on cheese making in general and the "Loomis cheese" in particular. I have had a life-long experience in the cheese business and can say that we have derived both pleasure and profit, likewise experience, from the business. I thought as you had requested an article on this subject I would comply and perhaps would be able to interest, if not instruct, at least some of the readers of the best farmers' paper in the West.

THE FIRST REQUIREMENT in successful cheese making is cleanliness. Nine per cent out of ten would have said the first thing necessary would be cows. Nay, nay, it is of no consequence how many cows you may have if you have not utter cleanliness, neither will you have cheese like the Loomis.

The second requirement is to be sure you are right in your cleanliness. Then comes in the cows. For them, it is essential that they have good, clean food and plenty of pure water. You will find it utterly impossible to make good cheese when the cows have only warm, muddy pond water to drink.

THE OUTFIT. Procure a common galvanized iron tub and a tin wash boiler. Send to a dairy supply house and get rennet extract tablets and color, and have your tinmer make you a hoop, say eight inches in diameter and ten inches high and about one-inch thick. Have a board cut from a one-inch thick pine board that will fit the hoop, not too tightly.

THE PROCESS.—Strain the night's milk into the tub, stir until cool, and set in a cool place to prevent souring. In the morning, before milking the cows, warm the night's milk to about 98 degrees, stirring well to mix all the cream with the milk. Add the morning's milk and the rennet and color, according to directions accompanying each, stirring well. Now let it stand until the milk "clabbers," which takes about ten to thirty minutes, if sufficient rennet is used. Then cut the curdled milk into small cubes three-fourths of an inch square and let it remain until the whey begins to rise to the top. Then dip off what whey you conveniently can into the tin boiler and heat to 130 degrees Fahr., draining the curd into the milk in the hoop and stir gently with the hand. Continue dipping off and heating the whey and returning to the curd until the whole mass is heated to 110 degrees. Now spread a cloth over the tub and let stand for about one hour and a half, then draw off all the whey, which will take about five minutes, so it will take all evening. Sprinkle the salt in and work with both hands until the mass is salted to taste. Place the hoop upon a twelve-inch square piece of board, spread a piece of cheese cloth about thirty inches square over the hoop and press the center down to the tin boiler, and let stand for about one hour and a half, then draw off all the whey, which will take about five minutes, so it will take all evening. Sprinkle the salt in and work with both hands until the mass is salted to taste. Place the hoop upon a twelve-inch square piece of board, spread a piece of cheese cloth about thirty inches square over the hoop and press the center down to the tin boiler, and let stand for about one hour and a half, then draw off all the whey, which will take about five minutes, so it will take all evening. 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Horticulture

HORTICULTURAL TALKS.

W. D. C. GALENA, MO.—"If a bed of perfect flowering strawberries will not do well alone (one variety, I mean), please tell me why not in the next issue of the RURAL WORLD."

There is no reason why a perfect flowering variety should not set fruit and do well, providing it has been well cared for. Any variety may fail under unfavorable conditions, such as poor cultivation, unsuitable soil, etc. When other conditions are right, perfect flowering varieties ought to bear well, although experience has taught me that even staminate varieties will set and mature more good fruit when several kinds are planted, than when one staminate variety is by itself. I would not be too positive in this statement, for one of the finest and most profitable crops of berries I ever saw was a three-acre field of Ruby with no other variety of close observation. I must conclude that the best results may be expected from fields containing several varieties.

A PLEASANT MEETING.—The Alton Horticultural Society met on Saturday, May 10, at the residence of Dr. Smith, near Godfrey, Ill. There was a fair attendance, considering the busy time of year. Several important points were mentioned and discussed.

BORERS.—Dr. Van Horn of Jerseyville, having been troubled very much in the past with apple and peach borers, said he had used the old reliable, though tedious method of cutting out and gouging with wire, and asked if the work might not be effectively done with less time and trouble by squirting a little oil or turpentine into the borer's run, and then shutting up the opening.

To this the writer replied that in putting in enough of such material to reach the worm there might be more injury done to the tree; and suggested for trial the use of bisulphide of carbon. If this were put in, and the opening closed with putty it would mean sure death to the insect and surely do the tree no injury. This suggestion was thought very feasible by those present, and I would be pleased to have others try the experiment and report.

THE GENERAL REPORT was for a fair crop of apples. Ben Davis would have been last year, seems to be without exception taking a rest this year. Some showed very little bloom and others none at all.

Pears, especially Bartlett, Seckel, Duchesse and Kieffer, promise well. Plums set well as a rule, and are getting in better shape than last year.

GRAPES.—Major McPike gave an interesting and instructive talk on grapes. He said that some of the earlier varieties were killed back last winter, which he attributes as much to last season's drought as to the winter's cold. Campbell's Early is, with him, killed back entirely. What a pity that a grape bloomed as it was and sold by the million, should prove such a failure. All hardy varieties were reported in fair shape for a crop.

INSECT FRIENDS AND FOES.—A good crop of our dear little friend, the lady bug, was reported; our struggle would be still less, but we do not have assistance in destroying those insects that injure our crops. She probably does more good in devouring the eggs of our insect foes.

The cut-worm seems to be more prevalent this season than usual. The best remedy for this is to wrap stiff paper around the stem of each plant. For large plantations use Paris green, with air-slaked lime. Get a good portion of the material on the ground around the plants. The worms don't seem to like crawling over the lime surface. Use the same mixture for melons, cucumbers, squash, pumpkins, etc., and apply it just as soon as the plants begin to break through the ground.

Now plenty of seed, allowing a few plants in each hill for the bugs, but don't let them have any if you can help it. Better have too many plants and thin them out yourself than trust to the bugs to do it.

The outlook for strawberries is a little more encouraging. Many report a prospect for a fair crop of extra good fruit.

EDWIN H. RIEHL, North Alton, Ill., May 12, 1902.

MISSOURI APPLES THAT HAD BEEN SHOWN.

An apple twenty months old that is yet good to eat and has a very excellent flavor and is sound through and through is rather a remarkable and unusual thing. Such was the fruit that Mr. C. C. Bell, one of the Missouri commissioners to the "Exposition" brought to the office of the "Evening Post" and served to the staff on Saturday last.

The apple was the last of a lot of 140 barrels picked in a Missouri orchard on September 20, 1900, seven months before the Buffalo Exposition was opened and three months before the cornerstone of the first building at the Charleston Exposition was laid, yet it had been exhibited at both those great shows and if the St. Louis World's Fair had not been postponed it might have been good for show there.

Mr. Bell has kept a careful record of this lot of apples which were of the famous Ben Davis variety. They were put in barrels in Missouri on September 20 and kept in cold storage until May 1, 1901, when they were shipped to Buffalo. There they were kept in cold storage and exhibited made from the lot all during the fair and many of them given away. At the close of the exhibition eight barrels remained and these were shipped to Charleston. The particular lot from which the "last apple" came were taken from cold storage in Buffalo October 30, November 1. They arrived in Charleston Dec. 2, 1901, having thus thirty-one days in transit in a close case and subject to all the vicissitudes of railroad handling.

On December 2 a selection from the lot was made and 25 plates of the fruit were put on exhibit at the Missouri display in the cotton palace. At regular periods thereafter the display was culled and rearranged. The following is the record of the culling:

Feb. 24, 1902, reduced to 22 plates; March 8, 1902, reduced to 18 plates; March 13, 1902, reduced to 12 plates; March 27, 1902, reduced to 8 plates; April 3, 1902, reduced to 5 plates; May 1, 1902, reduced to 1 plate.

On May 3 only one apple was found to be entirely sound, and this was brought to the office of the "Evening Post" and cut open. It retained a good flavor and was firm throughout except a slight softening on the outside. While of course, not

not so fine as a fresh apple, it was yet very good to eat. Seven seeds were found in it, perfectly whole and clean except one, which had already sprouted, and showed a well developed tendril. Mr. Bell said this was the first time he had known a sound apple to contain a sprouting seed.

The seeds were carefully preserved and planted by Mr. Bell in a pot of earth taken from the garden of the St. Louis World's Fair. The culture was presented to the editor of the "Evening Post." If the seedlings flourish it is probable that a new variety of apple will be developed and maybe it will make one of the interesting exhibits at the St. Louis World's Fair. The new apple will be known as the "Exposition."—Charleston (S. C.) Evening Post.

THE CANKER WORMS.

Editor RURAL WORLD: The canker worms are doing so much damage in parts of our state that I again send out this notice warning spray the trees well with a Paris green, one pound to 100 gallons of water, to insure quick results. It is well to add four pounds of lime well slacked and thoroughly mixed to each 50 gallons of water. In spraying, do it thoroughly, and usually one application will suffice. If not, make another. In any case never let the canker worms destroy the leaves of the trees. These worms eat so ravenously that it is only a question of putting the poison on the leaves to bring sure death to them. They are so easily killed with the Paris green spray that there is no excuse for not doing it. Where France worms are prevalent use the Bordeaux mixture, also with the other. This is made by mixing six pounds of lime and four pounds of blue vitriol with 50 gallons of water.

L. A. GOODMAN, Secretary, Kansas City, Mo., 4000 Warwick Boulevard.

OKLAHOMA NOTES.

Editor RURAL WORLD: We live some distance from the postoffice, and in busy times our mail is a little old when it reaches us, but oh how fresh and refreshing is the dear old RURAL WORLD when it comes.

In the issue of April 16 I read an article by J. E. May, in which he says he smiled at the communication of "A. Greener," regarding whole-root trees. Nevertheless the article put me to thinking. I am a young man with little experience, but have just bought a nice farm and now have to improve it. It is my aim to put out a nice orchard in the near future.

Regarding piece and whole root trees, it seems reasonable to me that the piece-root tree will make the more rapid growth, because it has more surface area; but when the trees are required to resist high winds and protracted droughts, it is not necessary that the root-system be one that strikes deep, even if the trees do grow a shade slower?

I am thinking of planting the seed exactly where I want the tree to stand, and then grafting or budding, and thus avoid cutting the tap root. I also expect to have the trees a good distance apart to better enable the trees to resist drought.

My ideas are open to criticism, and I would be pleased to hear from any one who thinks I am wrong, for it is knowledge that I am seeking. J. D. OATES, Pottawatomie Co., Okla.

PEACH LEAF CURD.

It is well known that the leaves do an important work for the plant. Any disease, therefore, that seriously interferes with the functional activity of the leaves, will prove detrimental to the health of the plant. Such a disease is the peach leaf curd, writes Wm. B. Hoag, in the "Southern Fruit Grower." It is caused by a parasite, the leaf curl fungus (exococcium deformans), which attacks both leaves and young shoots. This disease is too well known to require any description. The masses of hyphae pass the periods of late summer, fall and winter, in the tissue of leaf buds—that is, the mycelium is perennial in the buds. With the beginning of spring growth in the tree, there is growth of the fungus as well, the new leaves and shoots being affected as they are put forth. The amount of the infection determines the extent of the subsequent distortion.

It is evident that the fungicide cannot be applied until the infection has emerged from the bud, and except in cases of treatment year after year, we cannot expect that the first leaves upon treated and untreated trees will show any great difference in the proportion affected by the fungus.

But we may rightfully expect treatment during a given season to reduce the amount of surviving fungus mycelium in the leaf buds. This effect will not be manifest until the following year. The more immediate results to be expected from spraying are of much the same nature; they cannot be expected upon the earliest leaves, but the spraying may and does prevent the infection of the succeeding leaves and shoots. By this we see that thorough spraying the preceding season is even more effective in the prevention of leaf curl than during the season of its occurrence. The first spraying

I WILL CURE YOU OF RHEUMATISM

No Pay Until You Know It.

After 2,000 experiments I have learned how to cure rheumatism. Not to turn boy joints into flesh again; that is impossible. But I can cure the disease allways. At any stage, and forever. I ask no money. Simply write me a postal card and I will send you an order on your nearest druggist for six bottles of Dr. Shoop's Rheumatism Cure for every drugist keeps it. Use it for a month, and if it does not cure you, pay your druggist \$5.00 for it. If it doesn't I will pay him myself.

I have no samples. Any medicine that can affect rheumatism with but a few doses must be trusted to the verge of danger. I use no such drugs. It is folly to take them. You must get the disease out of the blood.

My remedy does that, even in the most difficult, obstinate cases. No matter how impossible this seems to you, I know it. I take the risk. I have cured tens of thousands of cases in this way, and my records show that 39 out of 40 who get those six bottles pay, and pay gladly. I have learned that people in general are honest with a physician who cures them. That is all I ask. If I fail I don't expect a penny from you.

Simply write me a postal card or letter. Let me send you an order for the medicine. Take it for a month, for it won't harm you anyway. If it cures pay \$5.00. I leave that entirely to you. I will mail you a book that tells how to do it. Address Dr. Shoop, Box 235, Racine, Wis.



Small crops, unsalable vegetables, result from want of

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Vegetables are especially fond of Potash. Write for our free pamphlets.

GERMAN KALI WORKS, 93 Nassau St., New York.

should be given of full strength Bordeaux mixture, just before the blossoms open, or even two weeks earlier; and the second one of half strength mixture, just after the calyx drops from the fruit.

TO DESTROY SLUGS.

Mr. Henry Tryon, entomologist, in an article in the Queensland "Agricultural Journal" on slugs, says: "Among deterrents, the use of tobacco waste may be especially recommended. This is composed of the discarded midrib or stout, central rib of the leaf after it has been cured, and at present may be obtained at the tobacco factories at a mere nominal cost, say, about 5 shillings per load. Lay the waste on the soil round the portion to be protected. When the slugs come in contact with it they secrete a thin film of transparent mucus from their strap-like feet as if to protect them from injury, but the tobacco waste is fatal to them. You may also make a decoction of tobacco from the waste in this way: Fill a barrel with the stems, and cover with water. Let this stand for twenty-four hours. There will then ensue a slight fermentation. Drain off the water, and boil it down to the strength required. If you want a very strong solution, fill the barrel with fresh stems and fill with the water already used."

TO CONTROL THE CURCULIO.

Prof. Green of the Ohio Experiment Station, says it is reported by growers of European plums that the curculio can be controlled by the use of arsenical sprays alone, the success of the operation depending entirely upon the thoroughness of the application. Shortly after the blossoms fall a very thorough spray of Paris green should be thrown from the inside of the tree outward, as well as from the outside inward. In case of rain the poison must be renewed. When the mark of the little Turk is noticed the strength of the spray should be doubled and sufficient lime added to protect the foliage. This mixture should be put on the plums themselves, drenching them thoroughly, the object being to fill the incisions made by the insects in the egg-laying process. I am assured that if this is done carefully the curculio is usually killed shortly after hatching, the worm gradually grows together and the fruit develops perfectly.

THINNING APPLES.

Taking all the tests with apples into consideration, the best way there is a heavy enough crop to demand thinning the thinning always resulted in producing larger and higher colored fruit than was borne on the unthinned trees, says Prof. S. H. Branch in California Fruit Grower.

Thinning the apples according to the plan which was followed, and afterward gathering the fruit when it was ripe, required about twice as much time as it did to gather the ripe fruit from corresponding unthinned trees. No method of jar-ring or raking off the superabundant fruit can be advocated, because by such methods the fruit is removed indiscriminately, good and bad, and the coming out of the quality, large and ripe. The berries were sold by William Hartman at \$2 per three-gallon tray.

FIRST MISSOURI STRAWBERRIES.—The first Missouri strawberries reached the St. Louis market May 10. They were grown by M. F. Becker of Maxville, Jefferson County, and were of the coming out of fine quality, large and ripe.

The berries were sold by William Hartman at \$2 per three-gallon tray.

THE WOODPECKERS ARE FRIENDS of the farm and should be protected. They have remarkable tongues—probes they are. The bird has a keen ear and locates his prey by this sense. When he hears the chirping of a wood-boring beetle in an apple or other tree and dislodges it with his sharp chisel bill and probe, it is likely that on his next round he will find a colony of ants enlarging the burrow of the dead grub. The bird now brings into use the same tools used in catching the beetle, and the ants are drawn out and devoured. Both insects are injurious to the tree.

One of the most progressive seedmen in this country is Horace John Lewis Childs of Floral Park, N. Y. His large, elegant catalog is sent free to all who apply, and it presents an array of choice new flower and vegetable seeds, bulbs, plants and fruits which is really enticing. Mr. Childs has been in business 28 years, and I take the risk that he has cured tens of thousands of cases in this way, and my records show that 39 out of 40 who get those six bottles pay, and pay gladly. I have learned that people in general are honest with a physician who cures them. That is all I ask. If I fail I don't expect a penny from you.

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A CUTWORM REMEDY.

Many complaints are coming to the RURAL WORLD of the great numbers of cut worms, and the damage they are doing this season, and we are asked to tell how to fight the pest. We know of no better way than that described by one of our Ohio correspondents, Mr. George D. Bowers, of Hardin County, O., about a year ago, therefore, we repeat the ravages of the worms, as follows: This statement, which, after telling

A neighbor told me he had just read in a paper that by taking green clover, dipping in poisoned water and placing it around in bunches, the worms would eat it and it would kill them. Not having green clover, I used green rye. I took an old dishpan, put water and Paris green in the pan, then took rye and immersed it thoroughly, and then placed bunches along a few feet apart, a small handful in a bunch. I then took middlings (bran and cornmeal) will answer the same purpose) and used just enough Paris green to color slightly and scattered a small amount on each bunch of rye. When I got to the end of the rye, I just scattered a line of the poisoned feed on the ground a few steps.

Two days later I went out to look for results. At the first bunch of rye I found 3 worms, most of them dead, and the others in a very sad plight. Under the next bunch I found 25 worms and under the third bunch I found 73. I counted no farther. I just said to myself, "That is good enough." I then examined the line of feed where no rye was used and found a good number along that, so I concluded to try another experiment. I prepared my poisoned feed, took my Planet, Jr., iron drill filled the seed hopper and set it, I think, to sow about seven pounds of onion seed to the acre, and started across the patch, leaving a "dead line," and as fast as I could walk I made several lines on top of the ground across, around, etc., any way I wished to go. Two mornings later I went to look for results. At several places I measured four feet in line, and counted worms. The smallest number I found in four feet was six, and the largest number 41. I exclaimed, "That beats rye and clover." It took but a short time, the expense was very small, and I feel very sure that very few worms ever crossed the "dead line." When they come to it they stop and feed, and generally die right there. Some will bury themselves before they die, but many of them do not have time for that.

THE DESTRUCTIVE GOPHER.

A pioneer of Tulare county who resides near Farmersville, while engaged in irrigating his orchard recently unearthed a very large family of gophers. The Visalia Delta states that Mr. Charles Thompson, for that is his name, noticed one of the large fruit trees looking rather diseased and of any appearance other than thrifty. He began an investigation by digging away the soil from the base of the tree and was amazed to find a nest of gophers numbering ten. Not one escaped the rusty shovel to seek a more chosen home. To ascertain the exact number of the sickly appearance of the tree, Mr. Thompson dug deeper and found almost every root that should be feeding life to the tree eaten into and severed from the base of the tree.

Mr. Thompson further stated that he made single colonies of bees and sold them for \$8 to \$10 per annum. It is safe to say that bees, like poultry raising or small fruit growing, pays larger returns for money and time invested than almost any other business involving the same risk.

Remember, the market for the honey is right at your door. I could tell you who's crop at the house. Remember, that when once honey is kept regularly at the village stores it will become as staple as coffee and sugar, and a much more healthful article of food. Every person who aids in increasing the use of honey is to that extent a benefactor of his race. It can help you with information along this line I will be only too glad to do so at any time. GEORGE ENTY, Pennsylvania.

BUILDING COLONIES.

We want to build all our colonies of bees up strong, for those that are strong in numbers are the only ones we can count on to store a good crop of surplus. One of the greatest drawbacks to successful bee-keeping is that there are so many weak colonies on hand at the time the honey crop is being gathered. It takes them through the short honey harvest to become strong enough to store honey. Each and every hive should be overflowing with bees at the beginning of the principal honey harvest, for when they are thus populous they can be depended upon to do good work. If the season is long, writes A. H. Duff in the "Farmer's Voice."

Too many colonies run short of provisions during spring when they are building up, and the result is that they are crippled in force, for they cannot rear a brood without plenty of food in hand. Feeding is the only method that will bring them up to standard requirements, hence they should be liberally fed. Weak colonies may be brought up strong very rapidly by giving them some brood from the stronger ones, but we must exercise care in this, for we will cripple the strongest ones and be no better off than before. Draw only on extremely strong colonies to strengthen weak ones. If we have colonies that are in danger of swarming before the honey season is properly on, we can draw from them and then check them from swarming.

It is always in order to save frames of honey over from one season to another for the purpose of supplying the bees with honey in spring. This is the most simple and easiest way of doing it, besides the most sure. Keep off all surplus boxes during spring and confine the bees to the brood chamber until near the approach of the honey harvest.

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neighborhood you can secure them at a distance and have them shipped to you by express. The spring is the best time to move them, and the cheapest, as hives are not so full of honey and bees. They also stand shipping better in spring, and it will give the buyer the whole season to work with them and get what he can from the investment before winter.

What can I make out of bees? In the next question most frequently asked. I will answer by telling what some people have done. I knew a boy about 16 years old who was given a colony of pure Italian bees worth about \$5. In three years he had an apiary of twelve colonies, had kept the family in honey and beeswax, sold two colonies for \$100, and several dollars' worth of honey. A lady friend netted \$300 yearly from her bees. Her total investment was not more than \$150, and she used only about half her time from May to August, for she kept quite a large flock of fowls and sold many eggs and fowls each year. I have made single colonies of bees and sold them for \$8 to \$10 per annum. It is safe to say that bees, like poultry raising or small fruit growing, pays larger returns for money and time invested than almost any other business involving the same risk.

Remember, the market for the honey is right at your door. I could tell you who's crop at the house. Remember, that when once honey is kept regularly at the village stores it will become as staple as coffee and sugar, and a much more healthful article of food. Every person who aids in increasing the use of honey is to that extent a benefactor of his race. It can help you with information along this line I will be only too glad to do so at any time. GEORGE ENTY, Pennsylvania.

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MANAGEMENT OF BEES.

In handling bees we start with a few hives in the spring. These we place in the sun in rows one foot apart and where they are to remain all summer. Here we leave them in quiet till about the 10th of May, when the bees leave the hives and settle on the outside, then we set one frame of sections on the top of the hive, so that the bees may begin their work immediately, writes G. L. Treimer, in the "Prairie Farmer." We place but one frame at a time, as it makes the hive too cold for them to raise the young bees. We keep on in this way until each hive has four or five frames. In the fall and sometimes as late as December we take from the hive all the honey except one frame which we leave for the bees to feed on during the winter. As we never feed our bees sugar they have to live on this

honey or starve, which they seldom do. On the day we remove the honey the hives are carried to a cellar 30x40, especially made for the purpose. Here they are set in rows, one hive on top of another, where they remain till a bright sunny day in spring when they are again carried to their summer stands and all dead bees removed from the bottom boards. We have about forty hives and have sold many pounds of honey at 10 cents per pound.

Honey is said to be a cure for colds, while many claim that the sting of a bee will cure rheumatism.

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The Markets

WHEAT—By sample No. 2 this side at 80¢/bushel; ask. at 81¢ to be shipped by river from Levee, and 81¢ bulk, and 12¢ side at 81¢/bushel. No. 2 hard this side at 76¢, and quotable at 76¢/bushel for Turkey.

CORN—By sample No. 2 at 64¢ E and 64¢/bushel; ask. at 64¢ to be shipped by river from Levee, and 64¢ bulk, and 12¢ side at 64¢/bushel. No. 2 hard this side at 60¢, and quotable at 60¢/bushel for Turkey.

OATS—By sample No. 2 this side at 42¢ E and 42¢/bushel; ask. at 42¢ to be shipped by river from Levee, and 42¢ bulk, and 12¢ side at 42¢/bushel. No. 2 hard this side at 38¢, and quotable at 38¢/bushel for Turkey.

RYE—No. 2 at 80¢. BARLEY—At 80¢ to 90¢. FLAXSEED—At 80¢ to 90¢. HAY—100-lb. bales at 90¢/bushel this and E. side; at mill 90¢/bushel; ships at 81¢.

HAY—Prices E. side, as follows: Timothy 115 for No. 1, 140 for No. 2, 125 for No. 3, 110 for No. 4, 100 for No. 5, 90 for No. 6, 80 for No. 7, 70 for No. 8, 60 for No. 9, 50 for No. 10, 40 for No. 11, 30 for No. 12, 20 for No. 13, 10 for No. 14, 5 for No. 15, 2 for No. 16, 1 for No. 17, 1/2 for No. 18, 1/4 for No. 19, 1/8 for No. 20, 1/16 for No. 21, 1/32 for No. 22, 1/64 for No. 23, 1/128 for No. 24, 1/256 for No. 25, 1/512 for No. 26, 1/1024 for No. 27, 1/2048 for No. 28, 1/4096 for No. 29, 1/8192 for No. 30, 1/16384 for No. 31, 1/32768 for No. 32, 1/65536 for No. 33, 1/131072 for No. 34, 1/262144 for No. 35, 1/524288 for No. 36, 1/1048576 for No. 37, 1/2097152 for No. 38, 1/4194304 for No. 39, 1/8388608 for No. 40, 1/16777216 for No. 41, 1/33554432 for No. 42, 1/67108864 for No. 43, 1/134217728 for No. 44, 1/268435456 for No. 45, 1/536870912 for No. 46, 1/1073741824 for No. 47, 1/2147483648 for No. 48, 1/4294967296 for No. 49, 1/8589934592 for No. 50, 1/17179869184 for No. 51, 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